

Regulatory and Institutional Issues

Current Status of NARUC and FERC Model Interconnection
Procedures and Agreements

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US. Department of Energy
Quarterly Program Review
Joint Distributed Power and Industrial DG
July 10, 2002



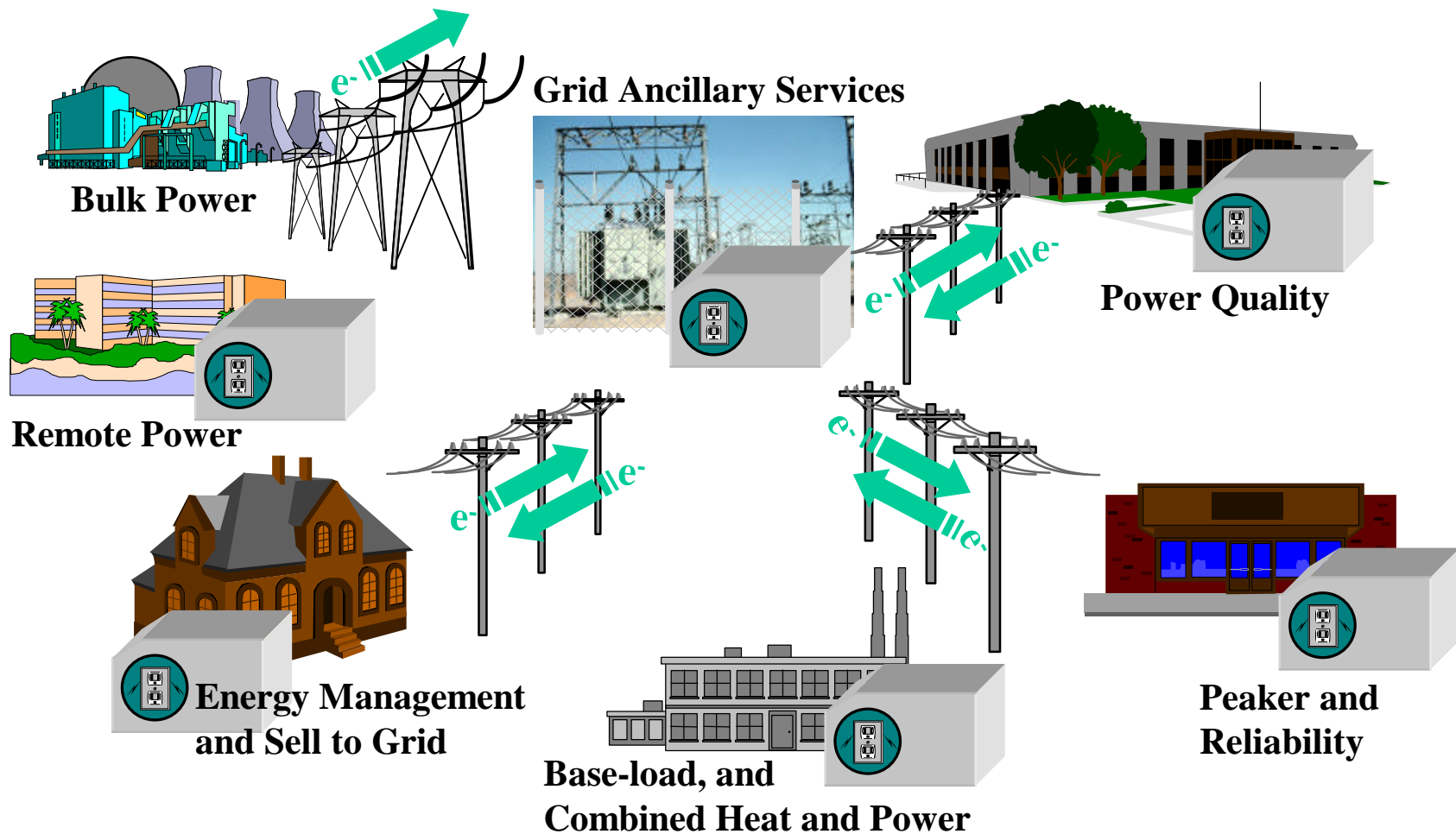


Presentation RoadMap



- **Regulatory and Institutional Issues – WASSSUP?**
 - IEEE P1547
 - FERC Generation Interconnection NOPR--Standardizing Generator Interconnection Agreements and Procedures - Notice of Proposed Rulemaking, Docket No. RM02-1-000, issued April 24, 2002
 - General Accounting Office Report Issued last week on need for national standardized interconnection agreement
 - NARUC Model Interconnection Procedures and Agreements
 - **The Impact of Air Quality Regulations on Distributed Generation** – Bluestein, Horgan, Eldridge
 - Draft Model DG Emissions Performance Standard, *Thomas Basso for Cheryl Harrington, RAP*

Why DER ? Standard Answer.



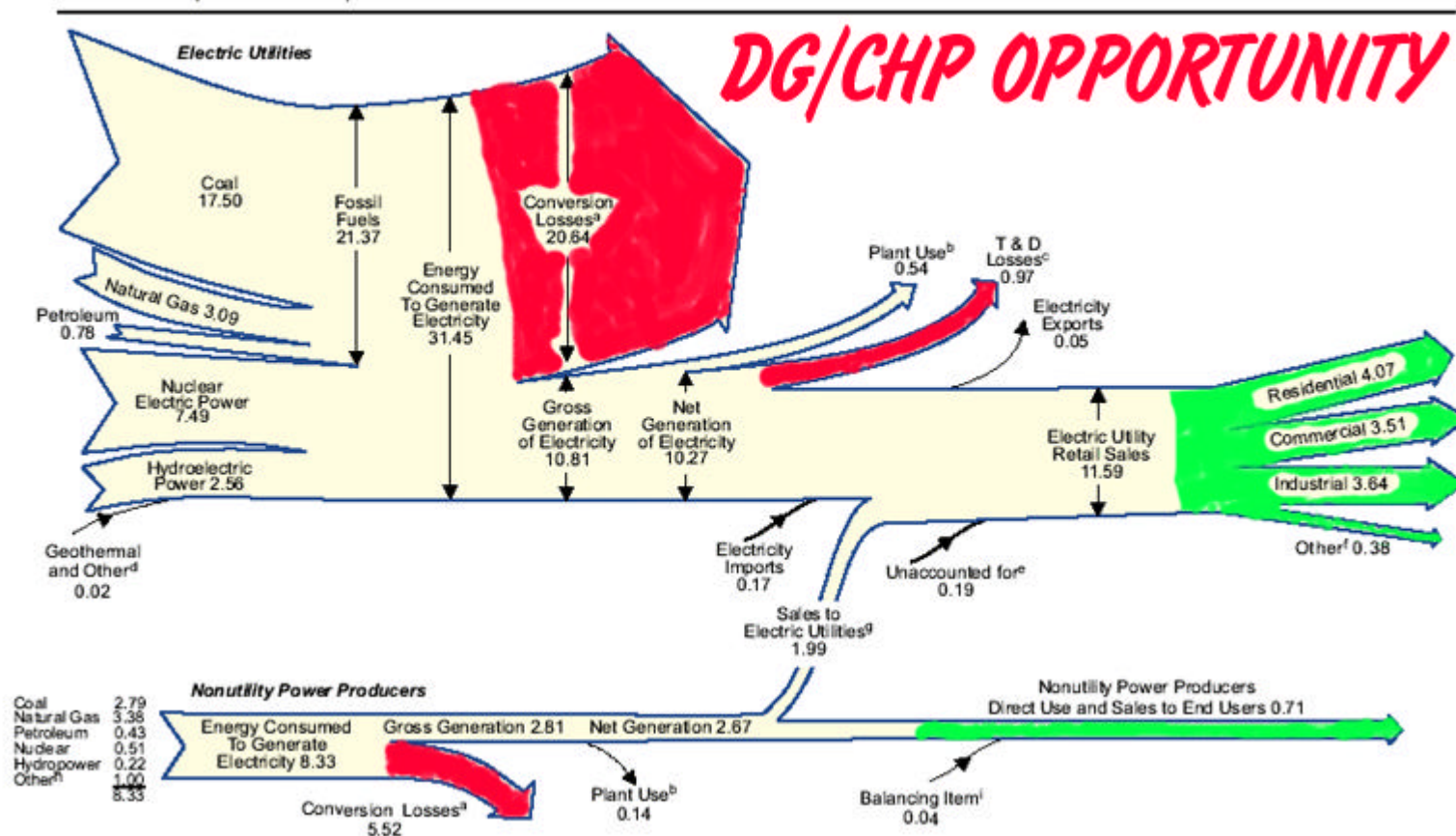
Why DG? Blunt Reasons

- Today's System CANNOT cost effectively provide the reliability and quality needed by some.
- Today's system Wastes 2/3 of the fuel's energy value—before it gets to the customer!
- Centralized systems are more vulnerable.
- Clean energy—renewables and natural gas—are often distributed, and small scale.
- DER has become a Precursor to the Intelligent Grid™--The first step toward the transformation of our 50-100 year old infrastructure to one fully utilizing modern developments in power technology, telecommunications, and computation/ automation, integrating sources and loads intelligently

Current System Based on Sleight of Mouth

Diagram 5. Electricity Flow, 2000
(Quadrillion Btu)

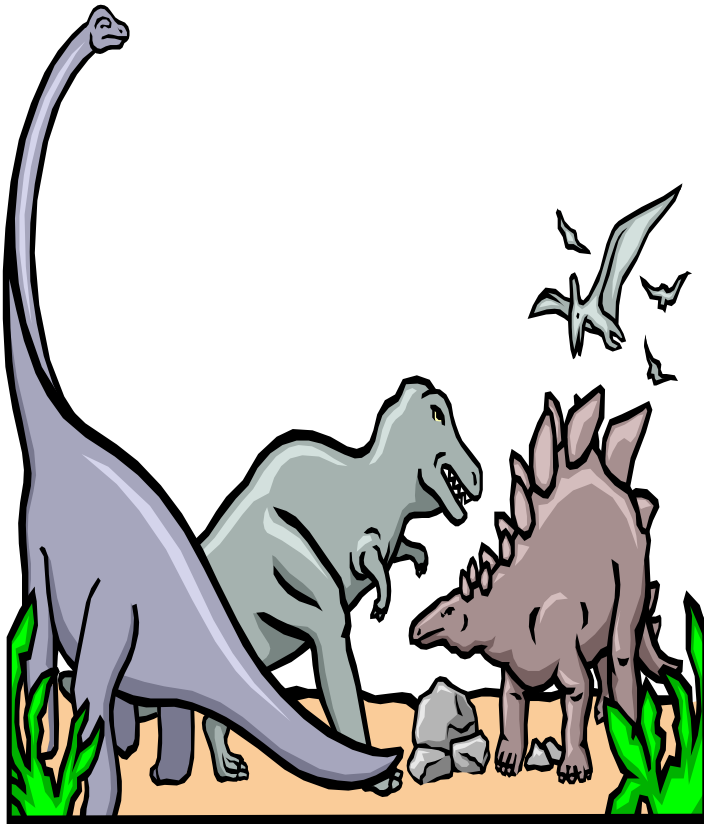
From Energy Information Agency, USDOE, 2000 Annual Energy Review



The New Recipe

- DG inherent benefits available to all in creating the new cleaner more efficient power system required
 - T&D losses eliminated on local generation
 - CoGen/CHP Potential enhanced
 - Custom Power Element
 - A Precursor to the Intelligent Grid™
- The first step toward the transformation of our 50-100 year old infrastructure to one fully utilizing modern developments in power technology, telecommunications, and computation/automation, integrating sources and loads intelligently

WHY NOW?

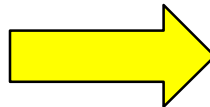


- Current Utility Model (central station, transmission, distribution system, economies of scale)
 - Current system designed at a different time, under different conditions
 - Current system wastes 66% of fuel energy
 - Current system not designed for very high reliability/quality—the digital need and beyond (99.9% reliable means 8 ¾ hours outages annually)
 - Huge majority of outages on distribution system (90%)
 - Doesn't make sense to bring whole system to that level
 - Important instrument of market discipline on “regulation”
 - Can't site new T & D
 - Need to move to the Intelligent Grid™

The World Has Changed Technologically The Structure of the Electric Utility Industry Is Over a Century Old

Old Paradigm

- Information Expensive
- Communication Expensive
- Monopoly: Customers Assumed
- Computation Expensive
- Labor Cost Low
- Fuel Cost Low
- Waste Disposal No Cost
- Materials Low Cost
- Centralized Model Based on Economies of Scale



New Paradigm

- Information Low Cost
- Communication Low Cost
- Customer Satisfaction Critical
- Computation Low Cost
- Labor Expensive
- Fuel Costs Highly Variable
- Waste Disposal Expensive
- Materials Expensive
- Distributed Models Based on Systems Approach

The World Has Changed Culturally...

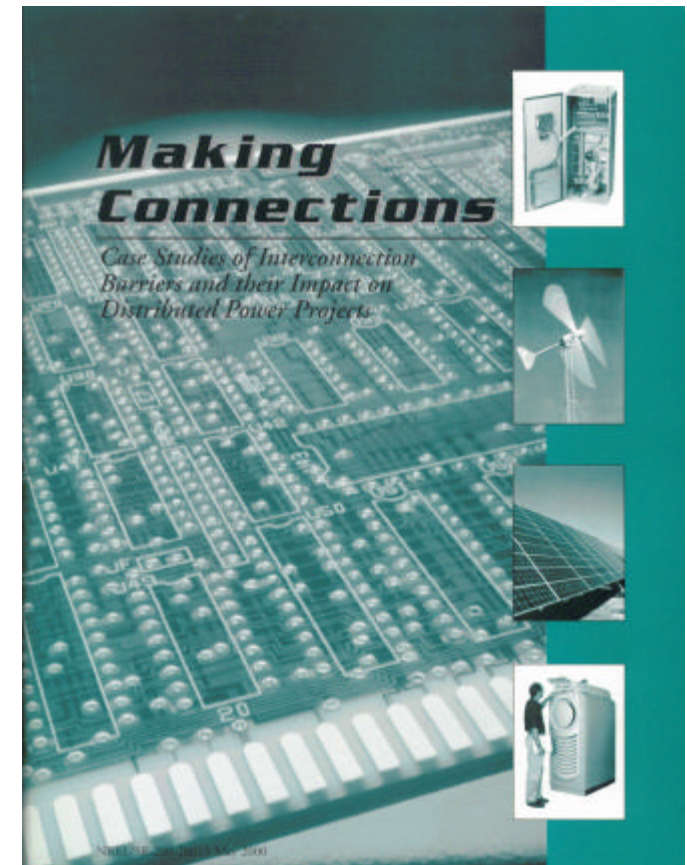
**Distributed
Generation
Units**

**Lower
Manhattan,
September
2001**



Making Connections A Report Card

- 65 case studies of barriers and their impact on distributed generation projects
- Project size ranged from 1kw to 25MW
- Technologies included photovoltaics, wind, fuel cells, gas turbines and engines
- Cases studies from 20 states



Study Results

- Interconnection requirements vary from state to state and from utility to utility.
- Engineering studies and additional protective relays and breakers often required.
- Compliance with interconnection requirements could cost \$2,000 - \$40,000 or more.
- Project delays of up to 6 months or more were experienced.
- Excessive back-up charges or exit fees.



Report Card on “Making Connections” Ten-Point Action Plan (red, yellow, green)



- **Reduce Technical Barriers**
 - Adopt uniform technical standard for interconnecting distributed power to the grid
 - Adopt testing and pre-certification procedures for DG equipment
 - Accelerate development of distributed power control technology and systems
- **Reduce Business Practice Barriers**
 - Adopt standard commercial practices for any required utility review of interconnection
 - Establish standard business terms for interconnection agreements
 - Develop tools for utilities to assess the value and impact of distributed power at any point on the grid



Report Card on “Making Connections” Ten-Point Action Plan (Cont’d)



- **Reduce Regulatory Barriers**
 - **Develop new regulatory principles compatible with distributed power choices in both competitive and utility markets**
 - **Adopt regulatory tariffs and utility incentives to fit the new distributed power model**
 - **Establish expedited dispute resolution processes for distributed generation project proposals**
 - **Define the conditions necessary for a right to interconnect**

Regulatory Systems Not Designed for Distributed Power Resources

- Today's regulatory system is based on a symbiotic relationship between the regulatory commissions and the regulated monopoly
- Many of the basic “truths” of traditional regulation no longer apply.
- What is in the public interest when the technological world has changed so dramatically?

CAN ELECTRICITY AVOID THE DSL DEBACLE?

“A host of new companies were founded to provide digital subscriber line (DSL) connections, but after a short while they went under in droves, as the Regional Bell Operating Companies (RBOCs) reasserted their strangleholds on local markets.”

-page 51, “How to Make Deregulation Work”,
William Sweet & Elizabeth A. Bretz,
IEEE Spectrum, January 2002

What Role Can And Should Legislators and Regulators Play?

- **Regulatory Barriers to DER**
 - A right to interconnect
 - Undue Discrimination in Pricing
 - Standby Tariffs
 - Backup Tariffs
 - Economic Development Rates
 - Load Retention As A Policy Goal?
 - “Business as usual” infrastructure investment
 - Are “traditional” radial/one way investments imprudent?
 - Identification of high cost areas
 - Targeted distribution credits
 - All-source bidding
 - “Avoiding the DSL Debacle”
 - General Systemic Bias Against Innovation



What Every State Must Do

- Review statutory framework of utility regulation
- Review elements of “business as usual” regulation that have become “anticompetitive” and thus perhaps not in the public interest.
- Establish a right to interconnect, upon fair and equitable terms



Top Ten Ways to Accelerate DG Integration



1. Answer (solve?) the “Who pays for what” question.
2. Complete IEEE P1547 standard process
3. Implement national certification and testing procedures
4. National legislation providing a right to interconnect and standard contracts and regulatory review of costs; FERC action following “Standardizing Generator Interconnection Agreements and Procedures” applicable to distribution level interconnection
5. Adopt state rules, move toward national consistency
6. Support research and “public” discussion of growing Electric Power System experience with DG integrated with EPSs
7. Pay utilities their lost revenues, stranded costs, and extra return on DG investments
8. Allow all Utilities to compete in the DG marketplace
9. Require ISO’s to provide access to members systems, with regulatory review of terms and conditions
10. Support the development of utility work practices that are “both DR and Worker friendly.”

NARUC DR Interconnection Agreement and Procedures Project

- NARUC Winter Meetings Resolution
 - Reviewed NARUC’s long and consistent support for DG (attached)
 - Cited prior resolution OPEN ACCESS
 - Endorsed the development of DR “Interconnection agreement and procedures”
 - To Build Upon work begun in leading states
- Current Status of Project



NARUC DR Interconnection Agreement and Procedures Project Current Status



- NARUC Staff Draft Made Available for Comment on ? Documents and Comments available at
- First Date for Comments July ???, reply comments by July 12, 2002
 - Received comments from 9? groups
 - Too many issues left up to the states
 - Some technical issues pointed out
- Likely Commissioners Telephone Conference next week
- Additional Comment

NARUC Current Status (cont)

- Only state utility staff participation to date, essentially utilizing the various rules and agreements adopted in California, Texas, New York, Ohio, and Delaware.
- To be discussed further at Portland Oregon meeting.
- Effect of NARUC approval
- Additional supplementary materials